

MARINES



Amphiprion ocellaris

photo: J. Brei

Try it yourself: The breeding of the clownfish *Amphiprion ocellaris*
Clownfishes and their sea anemones are already longstanding aquarium favourites. The fishes' symbiotic life together with the partially magnificent colouration of the anemones, their swinging motions as well as their clownlike behaviour in their territory makes the fishes extremely popular and fascinating. In this article it's impossible to describe all of the clownfish species and their hosts. However, the spawning and breeding behaviour doesn't show many differences between the species.

The breeding pair

To choose suitable fish for our breeding is rather simple. As far as we aren't lucky enough to buy an adult pair we just purchase a larger and a smaller fish of *A. ocellaris*. As all clown fishes are born as males but the dominant and larger specimens develop into females, with our way of selection we have a great chance to own a pair which will harmonize

later. There are several suitable host sea anemones for our *A. ocellaris*, e.g. *Heteractis magnifica*, *Stichodactyla gigantea* and others. A 200 liter containing aquarium with all the wellknown aquaristic fittings is large enough for our breeding pair and the anemone.

The fish reach maturity after one to one and a half year. If the *Amphiprion* are already adult it takes about

Offspring in the seawater aquarium The challenge!

by Jürgen Brei (Marineaquarium, Messel)

Seawateraquarism is booming. One of the most important demands of modern reef aquarism, however, is not just to maintain the aquarium kept specimens successfully for as many years as possible but to reproduce them.

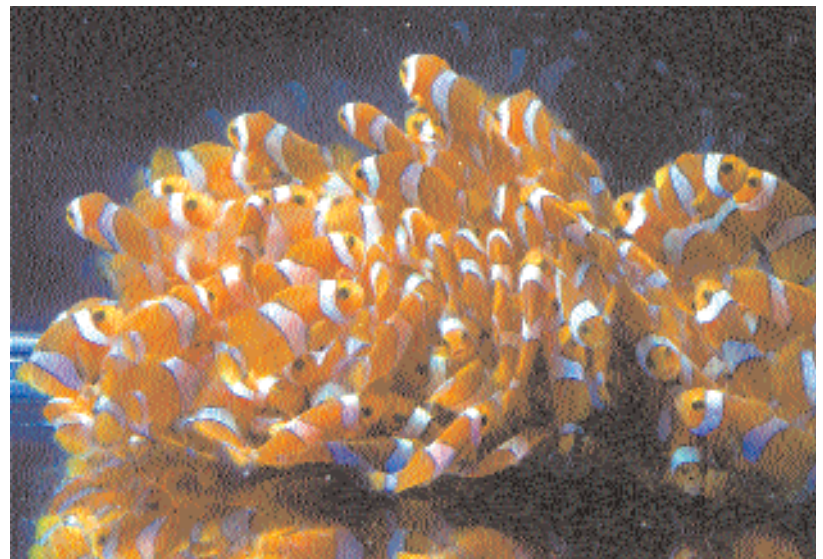
four to six months until under good conditions they start with the first spawning preparations, according to my personal observations. In this period the fish have to be supplied best with a diversified menu out of the wellknown frozen food choice.

As the parental resp. spawning aquarium is decorated as usual regarding filtration, gravel and water flow it is absolutely unsuitable for the fry (freshly hatched fry can't

stand any water flow), thus a so-called hatching tank with about 100 liter volume has to be prepared. This doesn't contain any decoration

There's nothing without plankton: culturing phyto- and zooplankton
Good Amphiprion breeders spawn over a longer period in a ten to fourteen days rhythm. To feed the fry during the first six to ten days you need larger quantities of plankton. The phytoplankton (green water) consists of the minute unicellular *Dunaliella* algae. This plankton is also eaten by the tiny zooplankton organisms *Brachionus*, which make the best food for the newly hatched clown fishes until they are large enough to digest newly hatched brine shrimp naupliae.

In the beginning the problem with the plankton cultures is too have enough cultures just in time when



In the raising tank the fry crowd when stressed.

photo: J. Brei

except a suitable heater and light (directed by a timer). We also need the option to completely darken all sides of the aquarium with black cardboard. Last but not least we need a small airstone with a tube and a small electric air pump.

you need them. However, that's just a question of practice! A very important factor effecting the phytoplankton is the lighting. Permanent light (24 h) with a day light spectrum, e.g. OSRAM neon bulbs light colour 11 or 12, but also HQL lamplight is very suitable.

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TIPS & TRICKS

Brush algae? Natural assistants against the plague by Frank Schäfer

Among all the different algae which can inhabit a freshwater aquarium most of all the brownish black beard or brush algae are said to be very difficult to defeat. Here we present you three animal species which have proved to be good assistants in defeating this algae.

The shrimp

The first species to be mentioned is the shrimp *Caridina japonica*. Originally it occurs in the Southeast Asian area. The discovery of the shrimp for aquarism was a little sensation as now for the first time we had a reliable algae eater which was also suitable for small aquariums and, additionally doesn't damage any plants.

Unfortunately the breeding of the shrimp in the aquarium has not been successful yet. It attains a length of about 4 cm and is absolutely peaceful towards all other aquarium inhabitants.

The characid

The bottomdwelling characid *Parodon affinis* from Paraguay is another wonder



Caridina japonica

photo: F. Teigler/A.C.S.

regarding algae removing. The peaceful, however partially very hectic swarm fish attains a length of about 12 cm. This makes it more suitable for larger aquariums. This species is very adaptable regarding water values, however, the temperature should not exceed more than 26°C permanently.

The catfish

While the shrimp also removes algae from small plants, while *Parodon* on the other hand more likely defeats the algae



Parodon affinis

photo: H.J. Mayland/A.C.S.



Glyptoperichthys gibbiceps

photo: F. Teigler/A.C.S.

growing of the leaves of larger plants, the last fish I want to recommend to you is the one for the rough way: the Sailfin Plecostomus, *Glyptoperichthys gibbiceps*. Originally this suckermouth catfish occurs in South America, however, meanwhile it is bred in Asia in large numbers. Although this species may reach a length of 15 to 20 cm (under aquarium conditions), it slowly grows and is very

peaceful. This species keeps your aquarium panes and the decoration clean and doesn't even disdain the brush algae.

Finally it should be mentioned that all these biological little assistants don't damage the other plants in the aquarium.

REPORTS

Aspidoras raimundi

Origin, maintainment and breeding

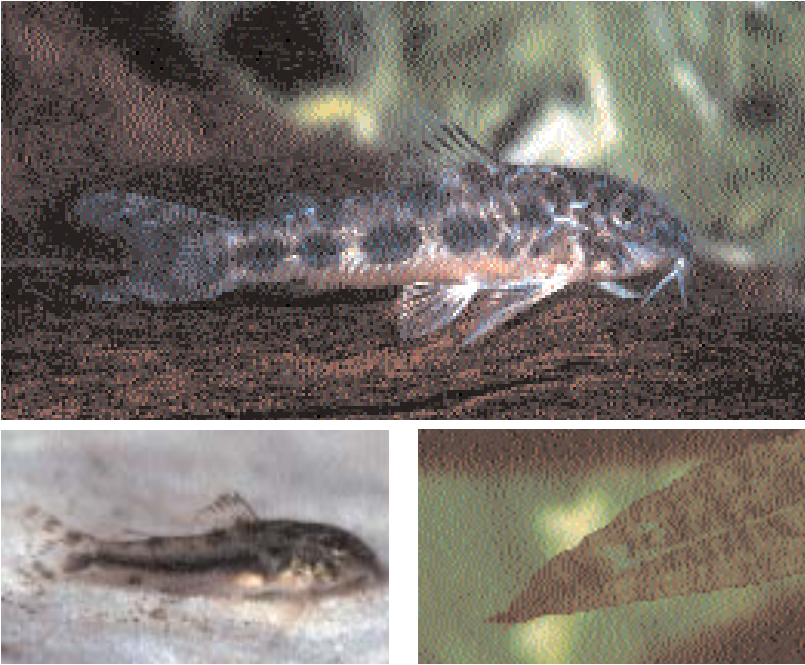
by Peter Schwabe

At present 16 different *Aspidoras* species are described scientifically. Here I want to present a species of which until today no breeding reports have been published: *Aspidoras raimundi*.

Introduction

The members of the genus *Aspidoras* are chiefly distributed in the southern and eastern states of Brazil (Ceará, Goiás,Piauí,Mato Grosso,etc.).*Aspidoras raimundi* has been described first by STEINDACHNER in 1907 and has been found in the tributaries of the Rio Paranayba (Est. Maranhão). The only

exception within the genus is *A. pauciradiatus* which is found far more northern in the Brazilian Rio Negro area. During a visit at the company Aquarium Glaser in February 1998 I had the chance to purchase six about 3-4 cm large specimens (three males and three females).The fish attracted my attention by their slender body shape and their



Above: Adult *Aspidoras raimundi*.
Below left: A fry aged 8 weeks. At this point it has a length of 1.2 cm.
Below right: Fresh spawn of *A. raimundi* on a plant leaf.

(photos: D. Bork)
(photo: P. Schwabe)

active swim behaviour. The males are smaller and more slender than the females. The transport and the following seven day quarantine didn't cause any problems.

The breeding

Now I transferred the *A. raimundi* to a 30 liter containing breeding tank. This was decorated with fine sand, an airdriven internal filter and some small Anubias nana, and javafern. The water values were left within the normal range, i.e. 12° total hardness, pH around 7 and a temperature of 23°C. I wanted to familiarize the fishes slowly with the various food types like bloodworms, brine shrimps and a pure vegetarian food pulp which is self-prepared. After three further weeks of successful maintainment I wanted to know it. With small water changes I changed the water values to a range of total hardness less than 5°,carbonic hardness less than 2°, and a pH of under 6. I increased the temperature to 25°C, the conductivity was about 130 µS. Now I found that the fishes started to become much more active and that the males started a hectic chasing. Before on the next evening the fishes spawned, the day before I made another 25% water change with cooler water. The eggs have a diameter of about 1.5 cm and a slightly yellow to ochre colouration. The eggs were scattered all over the aquarium, i.e. at the panes, the heater, the plants;they were laid by single or by up to six eggs at one place. According to the number of eggs (up to 30) I estimate that at least two females had spawned. I

left the eggs with their parents in the breeding tank, but to my great disappointment they were eaten by their parents. The next time I removed the eggs with my fingers which was possible without any problems, and transferred them to a small breeding tank. However, there they got fungus. Even medicaments to prevent against egg fungus didn't bring the expected results. One of my very good aquarium friends (the meanwhile unfortunately late Karl Lang) once recommended to me to use alder cones to solve these problems.I tried this method by putting some alder cones into the breeding tank, transferred the new spawn into a spawning chest and let it flow in the breeding tank water. Now I found that the eggs developed with a more than

80% rate. The eggs took five days to develop until hatching. The further development of the fry was without problems, they grow rapidly and seem to be rather robust.

Summarizing I have to say that it is no problem to induce spawning in this species, but the successful maturation of the eggs may cause some problems. You can induce a better egg production in females if you feed more often brine shrimp naupliae. I hope that in future more *Aspidoras* species may find their way into the aquarists' aquariums and that with this breeding report I succeeded in giving a little contribution for the further distribution of *Aspidoras* species. They are a wonderful enrichment for every small aquarium.

TOP TEN

Top Ten by MAL-TA-VI

In the new top ten list this time we present the bestsellers of the company MAL-TA-Vi from Germany, specialists in cichlids. The often very colourful cichlids from Lakes Malawi and Tanganyika fascinate by their high specialised breeding and feeding behaviour.

The first place among the most popular Tanganyikan cichlids is occupied by *Altolamprologus calvus*, which lives at the Zambian lake shore. Most of all in Asia this elegant predator is very popular, however, with too less hiding places in the aquarium it will remain shy. The fish feed on live food of any kind and have been bred successfully already several times.

On place 2 with *Benthochromis tricoti* we meet an inhabitant of the open waters. The males have wonderful blue iridescent lateral stripes while the females are uniformly grey. As these fishes live in Lake Tanganyika in large schools you should solely keep several specimens at a time and offer plenty of swimming space to them.

Cyphotilapia frontosa surely is one of the most impressing fishes from Lake Tanganyika. The colour variety "Blue Mpimbwe" takes the third place of the top ten. Most striking character of this species is the large hump forehead which is present as well in males as in females. The massive fishes attain a length of 35 cm and need a large tank with many hiding places. By the way, in their African home the "humpheads" are sought after food fish.


With *Lamprologus ocellatus* on the fourth place we find a representative of the interesting snail cichlids. These small scale cichlids place their eggs in empty snail shells. These fish don't just fascinate by their extraordinary behaviour but in an aquarium decorated suitably they also are a vivid eye-catcher.

All *Tropheus* species are extreme feeding specialists. In Lake Tanganyika these fish eat the algae "Aufwuchs" from the rocky substrate, as a result they should have also vegetable food added to their diet. The fry of *Tropheus duboisi* show some striking white little dots which disappear when the fish become older. *Tropheus moorii* shows several habitat varieties which all have a specific body colouration.


Among the most popular cichlids from Lake Malawi the first place is taken by an old friend, *Copadichromis borleyi*. This species was formerly known under the name of *Haplochromis borleyi* and is found among others near the village "Kadango" where it inhabits rocky parts of the shore. The females have yellow fins while the males are characterized by their striking blue fins with white borders. These fish need much swimming space and a varied diet consisting of live, frozen and flake food.

Another deep blue cichlid takes the eighth place: *Placidochromis phenochilus*. It belongs to the "eartheaters" of Lake Malawi and needs sandy bottom where it can dig to feel well. Malawi cichlids are sometimes

labelled as the coral reef fishes of the freshwater. Among the smaller representatives we find two species which have been described just a few years ago but already are very popular among the enthusiasts: *Pseudotropheus demasoni* and *Ps. saulosi*. In the deep blue and black striped *Ps. demasoni* the sexes cannot be distinguished by colouration. The adult females just remain a little smaller. *Ps. saulosi* is another wonderful species. The males have black vertical stripes on a striking blue ground while the females show an elegant yellowish orange. This species can easily be kept together with other cichlids of the lake.



Altolamprologus calvus photo: Archiv A.C.S.



Pseudotropheus demasoni photo: E. Schraml

TOP TEN

1. Altolamprologus calvus

2. Benthochromis tricoti

3. Cyphotilapia frontosa

4. Lamprologus ocellatus

5. Tropheus duboisi

6. Tropheus moorii

7. Copadichromis borleyi

8. Placidochromis phenochilus

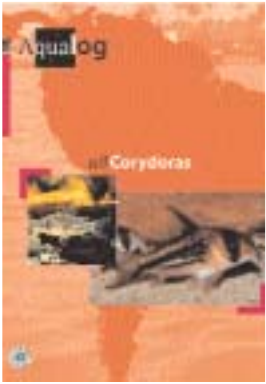
9. Pseudotropheus demasoni

10. Pseudotropheus saulosi

Anzeigenfilm

Animal

Messe Stuttgart



Book recommendation

The Callichthyidae catfishes with their about 170 species accepted as valid today represent a large fish group. Additionally there are several more yet undescribed species, especially in the genus *Corydoras* more than 50 not finally identified species have been coded with C numbers. Without exception all species are suitable aquarium fish, and many representatives belong to the most favourite aquarium fishes at all.

While the *Aspidoras*, *Brochis* and other armored Callichthyinae catfishes (*Callichthys*, *Dianema*, *Hoplosternum*, *Lepthoplosternum* and *Megalechis*) altogether make about 30 species, all other species (still) belong to the genus *Corydoras*. No men can remember all of the species by heart, and nearly monthly new discovered species are put on the list.

The AQUALOG all *Corydoras* with its more than 650 colour photos for the first time makes the attempt to give a total overview of all of these fishes so important and desirable for aquarism. Every colour variety and every morph which has been available is shown. Also the species which haven't been seen alive until today but have already been described scientifically are shown in b&w drawings.

As every variety independently from their present scientific state has been listed with an unmistakable code number, it may still be recognized if the scientific name once should change.

The species were arranged according to their superficial similarities to allow an as simple as possible identification by comparism with the pictures.

ISBN: 3-931702-13-8, 144 pp, softcover.

REPORTS

Strange observations in the breeding of *Rhamphochromis* cf. *macrophthalmus*

by Bernd Bender

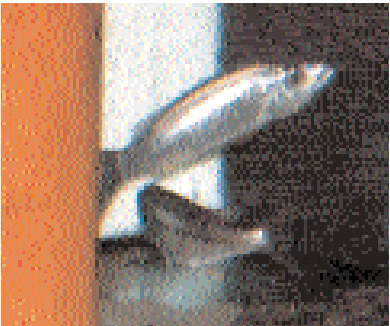
Aquarism is a very versatile hobby. While the first one keeps and cares for tiny fish jewels the second one picks up his fish with the motto: "large, larger, gorgeous". In the following you find a report on the breeding of a Lake Malawi predator - with astonishing results.

A year ago I visited an aquarium friend in Laudenbach near Heidelberg. He is a fan of large Lake Malawi cichlids, in his aquarium he keeps cichlids of the "bull class" (*Tyrannochromis*, *Champsocchromis*, *Buccochromis*, *Nimbochromis* und *Rhamphochromis*) which all are known as predators. Among the various species I saw a fish which I hadn't seen before. My friend told me that this would be *Rhamphochromis macrophthalmus*, a species distributed throughout the whole lake. In total eight different *Rhamphochromis* species are known which are difficult to distinguish by just external characters. *R. macro-*

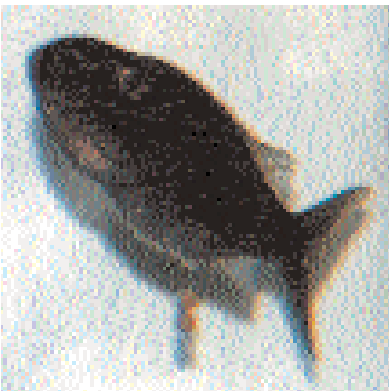
the typically preceeding circle swimming the male trembles strongly with its body. The special feature in the spawning of *Rhamphochromis* is that the females release up to five eggs at a time and that these hang together like a chain of pearls. The "chain of pearls" is released simultaneously and the female picks it up with its mouth as a total. I made some pictures of the spawning process. Unfortunately I couldn't get closer to the aquarium as the fish felt disturbed then. Therefore the photo quality is rather poor but this is the first documentation of an as far unknown fact.



Rhamphochromis cf. macrophthalmus



Spawning with the egg spot method.



The eggs still hang together like a chain of pearls. photos: B. Bender



Champsochromis caeruleus, the trout cichlid, another predator.

photo: E. Schraml

phthalmus attains a length of about 28 cm and, in contrast to the other representatives of the genus, is said to often occur near the shore line. Its slender body together with the blueish silvery gloss on the body sides and the yellow ventral fins appealed to me very much. My friend also had a few fry. Unfortunately he couldn't give me any informations on the mating or details of the reproduction as he hadn't been able to observe it. I purchased ten specimens. Back home I transferred them into a 2 m long aquarium. After one year the *Rhamphochromis* had attained a length of about 20 cm. Now the spawning activities started. It turned out that I had four male and six female fishes. The dominant male started mating rather vehemently. I fed the fish especially well and soon a female seemed to be ready to spawn. After a some hours chasing and mating to the female the time had come. The *Rhamphochromis* spawned in one of the aquarium corners in the typical haplochromine spawning manner with eggspot method in the open water. They didn't search for any spawning substrate during the whole spawning period to lay their eggs on. During the egg release with

Forthcoming at AQUALOG:
African Cichlids II: Malawi Utaka,
with pictures of all Lake Malawi cichlids which can't be classed with the rock cichlids!

A new dwarf characid from Peru

by Frank Schäfer



photo: D. Bork / Archiv A.C.S.

From Peru a new minute, quick-silvery fast swimming and additionally in all colours gleaming characid came to Aquarium Glaser.

Without doubt it represents a member of the genus *Tyttocharax*. The first identification of the little fish was as *T. tambopatensis*, which seemed to be similar down to the last detail. However, this species, described not before 1995 by WEITZMAN and ORTEGA, doesn't have an adipose fin, thus our species must be an until today unknown species. The charming fishes surely are an enrichment for every little aquarium.

They attain a length of just 1.5 cm. The males are larger and more colourful. Additionally they have a specifically formed anal fin whose description would lead to far at this point. You shouldn't keep this dwarf characid too hot. 24°C are the very best. The closely related *T. tambopatensis* lives in the black water, however, it turned out that the new species is unpretentious regarding this point. It feeds on frozen and flake food, it just must be small enough. Nothing is known until today about the reproduction.

QUICKIES

Did you know?

Regarding predatory Lake Malawi cichlids

- that many of the predatory cichlids among the Lake Malawi cichlids have developed very unusual hunting techniques?
- that these species preferably hunt for the sardine which occurs in Lake Malawi in masses?
- that these species at least partially hunt in a bunch?
- that in constrast the predatory cichlids of the genus *Tyrannochromis* are solitary hunters?
- that these cichlids preferably hunt for the rock dwelling cichlids (*mbuna*)?
- that among the estimated 700 to 800 cichlid species which occur in Lake Malawi only five species aren't endemic there (i.e. occurring just there and nowhere else)?
- that all these endemic species are mouth brooders?
- that especially the predators among the cichlids care for their fry very long?
- that, ont the other hand, the Aufwuchs eater, the *mbuna*, continue to care for their fry only rarely if once released from the mouth?
- that the knife cichlid, *Dimidiochromis compressiceps*, is said to bite out the eyes of other, larger fish which normally aren't its prey if the food is scarce (i.e. if there are only few small fishes which are its normal prey)?
- that the marginally described

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POND

The garden pond in the winter

by Peter Schäffer

Now when winter makes its appearance in our garden pond the water temperature slowly sinks below 10°C and the fish enter the stage of winter rest. They slowly glide down to the pond's bottom and stop their food intake nearly totally. Don't feed them until the warmer periods come back again. Our pond inhabitants will find enough food in the pond during the cold season if the temperatures anyway increase as far that they are able to take up some food.

Precautions

As our pond fish react much slower than usual I recommend to cover the pond with a net to prevent the fish from attacks of birds like herons but also from cats.

During colder periods the warmest part of the pond is near the bottom. Water has its highest specific gravity at 4°C, i.e. at this temperature it has the highest weight and sinks to the bottom. If the pond is large enough the pond temperature near the bottom is still about 4°C even if the surface is covered with an ice layer.

During a longer coldness period the ice layer may cover the pond like a tight lid with the result that the gas exchange stops and that as a result the pond water may have a lack of oxygen. However, the specialized trade offers some suitable remedies which doesn't let this become a real problem.

The gas exchange must be allowed

On the one hand you may use a pond heater (ca. 100-300 W) to keep an open hole in the ice cover, or you take an iceopener made from styropore. This has an additional opening in its middle which allows the gas exchange. Additionally you often can see that garden pond owners let balls or wooden planks float on the water surface to prevent it from total freezing. However, this method is totally unsuitable as it doesn't allow the gas exchange in any way. You should never break up the ice by use of force. This results in pressure waves which can stun the fish and other inhabitants and, in the worst case, may even kill them. To avoid an even stronger cooling of the water you

should turn off gargoyles and cascades if possible. Thus you prevent the mix of the warmer bottom layer with the colder water on the surface. This way the pond animals may survive undisturbed. As you don't need the garden pump for the winter months you can take it out from the pond and clean it according to the producer's advice and make it already fit for spring. Outer filters should be emptied before the first frost arrives.

If you follow these recommendations for the winter season you will have your pleasure with the fascination garden pond in spring again.



Winter mood at the garden pond photo: P.D. Sicka / Hottonia Darmstadt

FISHDOC

New results in nutrition research

by Dr. med. vet. Markus Biffar

The research of the optimal diet of ornamental fish is a scientific field of activity where many unsolved questions wait for their solution. In times of short money and accordingly decreasing expenses for peripheral research areas like the fundaments of nutrition of tropical fishes it is a real pleasure to see that since some time the researchers of the Institute for Inland Fisheries in Potsdam devote themselves totally to practically orientated problems of ornamental fish nutrition. In the foreground of these activities they ask the question, if it is possible to improve the general resistance, but also the general vitality, the colour richness and the stress resistance by specialised methods of nutrition.

First results

Their first results show that e.g. not only the absolute contents of carbohydrates, proteins and fats decide about the quality of a food but that most of all the relative proportions of these main ingredients towards each other are especially important under the aspects of health and stress resistance. Another promising approach is based on the most recent understanding of human nutrition: longstanding and detailed research projects have proved that isolated ingredients like e.g. vitamins, minerals or trace elements included in pills, drinks, etc. are only in the most rarest cases able to cause the same positive results like they would in their natural combination.

The causality

These results are actually explained with the hypothesis that vitamins, minerals, but also ingredients like omega-3-fatty acids are only able to have an optimal effect in combination with countless other substances and compounds which are permanently available in the natural carrier organisms like plants or food organisms.



This dwarf cichlid suffers from a diet-induced liver damage. New foods, like amtra sano, have been developed to prevent such damages in future. In this connection the most recent results of the nutrition research are used.

photo: F. Teigler/A.C.S.

PLANTS

Glossostigma elatinoides

Family	Scrophulariaceae
Land	New Zealand
Height	2 - 3 + cm
Width	3 - + cm
Light	high - very high
Temperature	15 - 26°C
Hardness	soft - medium
pH	5 - 7.5
Speed of growth	fast
Demands	very difficult



Glossostigma elatinoides is much in demand in Japanese-inspired aquariums. It is one of the smallest aquarium plants, and thus a good foreground plant. A difficult plant demanding a lot of light. Grows upwards if light is poor. Make sure larger plants do not overshadow it. When planting in the aquarium small clumps (approx. 1/8 pot) should be placed at intervals of a few centimetres to help the plants grow together more quickly. CO₂ addition and soft water promote growth significantly.

Tropica no. 045A

Cyperus helferi

Family	Cyperaceae
Land	Thailand
Height	20 - 35 cm
Width	15 - 20 cm
Light	medium - very high
Temperature	20 - 30°C
Hardness	soft - hard
pH	5 - 7,5
Speed of growth	slow
Demands	difficult



Cyperus species are widespread all over the tropics, but only a few of them are good underwater plants. *Cyperus helferi* is the first *Cyperus* species used in aquariums. It requires a relatively large amount of light, and CO₂ addition is recommended to promote growth. In aquariums with good water flow the plant sways beautifully in the current.

Tropica no. 133A

Abzeigenfilm Birgit Schmettkamp-Verlag Symposiumsbände

POND

If fish get "cold feet"

by Gregor Beckmann

Of course fish can't get cold feet, but in the wintertime garden pond they don't always find the optimal life requirements. Special water care may help the animals to survive this hard time.

What is to do?

The autumn is the time when nature prepares the cold season and the winter break. To bring your fishes and plants healthy through the winter they need some preparatory care. For this purpose it is absolutely necessary to carry out the general care steps adapted to each season. See also P.Schäffer's article on p.7 of this news. Additionally today you also have the possibility to prepare the fishes and plants optimally for the winter season by using special watercare products.

Where are the problems?

Garden ponds because of their relatively small water body do not only in summer but also in winter need some grooming acts to protect the organisms which live inside. In a garden pond during the winter such organisms find best conditions which are able to metabolize without oxygen. However, these can affect their environment in a negative way and the survival

conditions of the fishes and plants in their winter rest may get worse essentially.

How can we counteract?

In this case a water care product for the winter pond may be useful which supports the fishes and plants remaining in the pond without disturbing their natural winter rest:

- the production of rotten debris

and toxic bacterial products is reduced strongly by using it.

- the body surface of the hibernating organism is supported in its natural protective function by the natural active agents included in the product.
- Eventually occurring toxic water ingredients are detoxicated and bound chemically.

Such a valuable protective function is provided e.g. by the use of amtra winter condition to remove negative factors resulting from few light, decreasing temperatures and a lack of oxygen, which may occur during the complex processes which happen in the garden pond during winter conditions.



amtra winter condition is a product which has been developed especially to avoid all the problems which may occur in the garden pond during the winter season. photo:sicka/amtra

MARINES

Offspring in the seawater aquarium (continued from p. 1)

For a silver dollar large spawn which may let you end up with 200 to 300 fry you will need 40 to 60 liter plankton of each kind during the first 6 to 10 days. Daily you have to add about 3 times 2 liter plankton (*Brachionus*) into the breeding tank, according to the number of larvae. The fry have to practically "stand in the food". Accordingly you need suitable glass containers with the above volume for the culture of the food. Plankton culture starters will do for the start; however, it is not always easy to obtain these starters. You will have to make corresponding requests in the petshops, at breeders or zoos. However,

development the culture has reached a deep green colour you can add the zooplankton. The zooplankton (*Brachionus*) will increase within a few days to a high density and can be taken out for food purposes, e.g. with a beaker.

How do you notice the event? Good aquarists are also good observers!

You will easily notice that there's "something in the bush" by a change in the behaviour of your fish. During hours and very carefully the chosen spawning place is cleaned, normally by both partners, until the female shows



Phytoplanktonculture

photo: J. Brei

if you didn't have success this way I'd personally try to help you, dear reader.

For me the following method to culture the plankton has proved to be good:

Four tanks of complete glass measuring 60 x 40 x 40 cm are filled about 10 cm high with seawater with double salt content, then 1 liter algae culture is added and the whole tank is lighted with an 80 W HQL-beamer for 24 h. With this high salt content all zooplankton dies, while the phytoplankton still develops. After this culture has developed a light greenish colour which will take about one week (at 26°-30°C), the tank is filled up with fresh water until the normal sea water salt concentration is reached. Only slight aeration! If during the further

its urogenital papilla and she starts to stick eggs to the substrate little by little. Alternately the male inseminates the already present eggs and the female lays more eggs. The first spawn may possibly be small, but the further ones after a few more spawns may have a diameter of 6 to 8 cm.

My tip:

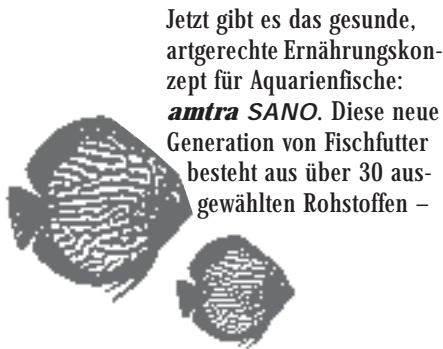
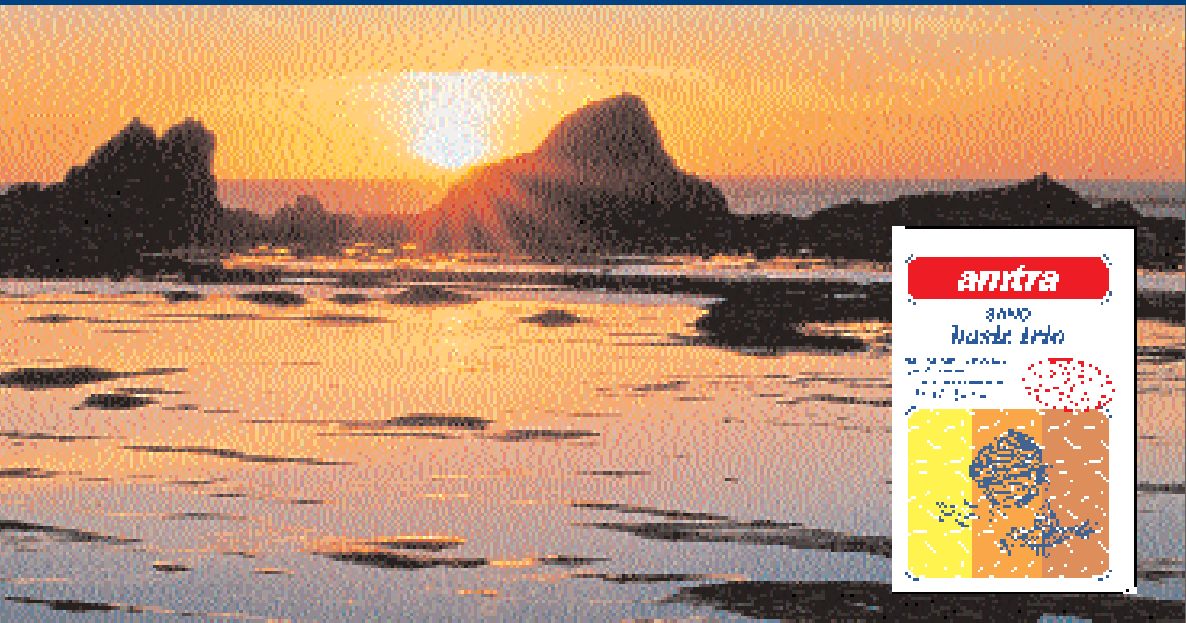
Don't take out the first spawn. Use it to collect some experience; i.e. observe the parents' behaviour with the eggs, how the embryos develop and in what time schedule, from what stage on you see the eggs, and how the embryo's movement becomes more significant and more visible shortly before the hatching.

continued in AQUALOGnews NO. 21



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The catalogue is useful as well for experienced aquarists as for beginners. Beside the alphabetically ordered overview over the plants you also find advice for the plant care, the decoration of open or

covered aquariums, algae prevention and control, etc.

Tropica Aquarium Plants is one of the world's leading suppliers of tropical aquarium plants. The catalogue also tells the history of a company which started 25 years ago as a hobby. The affection for tropical aquarium plants ended in an industrial company with the owner himself collecting new plants on expeditions.

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Underwater clowns

by Konrad Wolpert

Whoever is looking for a funny as well as interesting charge for the home is best advised with the dwarf clawed frogs of the genus *Silurana*. Whatever they are - they never are boring.



Minature Clawed Frog, *Silurana tropicalis*

photo: F. Teigler/A.C.S.

A fascinating bunch

In clawed frogs everything is different. They don't have a free tongue, whereas so many frogs use their tongues to catch their bait. On the hind legs they have sharp, horny claws although most amphibs are known to be literally defenceless. They leave the water only exceptionally while the overwhelming majority of the other frogs enters the water only for reproduction purposes. Their tadpoles are filtrators which filter suspended particles from the water instead of rasping off Aufwuchs like "normal" tadpoles. Additionally, the tadpoles have long barbels and look as fishlike that they once already had been

described erroneously as a catfish species. A close relative of the clawed frogs, the combtoad, *Pipa*, is breeding its fry in deepenings of its back skin. Briefly said: It are very special animals.

Jumping pregnancy tests

The large clawed frogs of the genus *Xenopus* have been the first reliable pregnancy tests in the world. If you inject the urine of a pregnant woman into the lymphatic sac of the back the females spawn within 12 hours at latest. This method has been developed in the 40s, and since then millions of women have to thank the *Xenopus* frogs for the answer on the worried questions "if" or "if not".

Large and small ones

The dwarf clawed frogs are most widespread among the animal keepers. Most of all the two species *Hymenochirus boettgeri* and *H. curticeps* are bred in large numbers in ornamental fish breederies. These maximally 4 cm long animals can be kept without problems in every community aquarium together with other, peaceful fishes. Large growing, however, is the albino breeder's variety of the clawed frog *Xenopus laevis* which is also offered regularly in the petshop trade. The frogs grow rapidly until they become 10 cm long bright specimens, at that point they eat everything which fits into their mouth and don't have any regard for the decoration wishes of the vivarist. Therefore you should keep them among themselves. The dwarf clawed frogs originally came from the tropical Africa and have to be kept at 24°-26°C. Keeping *Xenopus* it is not necessary to have an additional heater if you keep them in your living room.

The little unknown

It is fairly unknown that there is a miniature edition of the large *Xenopus*: the Miniature Clawed Frog *Silurana tropicalis*. It is widely distributed in Western Africa where it occurs frequently, and with a maximum length of 5 cm it is a handsome small claw frog with the same amuzing outer look like its larger cousins. The basic colouration is a light brown, additionally it is speckled all over with darker dots. Some specimens also have two dark stripes on their backs

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and make a special attractive look. The photo shows this variety.

Sex with a somersault

It's not always easy to induce breeding in these animals. You scarcely have pregnant girl-friends at your hand when you need them and they may react also a little bit strange if you ask them for their morning urine. Thus is has turned out best to keep the frogs at about 28°C for some weeks without a water change but with sufficient feeding, and after that period to make a radical water change with soft, slightly acidic water which shows a temperature of about 25°C. Immediately heat up to 28°C again - that should do it. The male clings to his adored with the forelegs round its hips and the dance starts. The spawning happens with a backward somersault, that is the reason why the aquarium

shouldn't be too shallow. The water level should be 40 cm or more. The eggs are laid on water plants. With the high temperatures the eggs develop quickly, provided that you have removed the parents - they are cannibals. The *Silurana* tadpoles are filtrators, as mentioned before. They swim in a school in the open water and against the current. The best food for them is the liquid starter food for egg laying ornamental fish. You also can (this is the classic way) bloat yeast and nettle powder to a suspension and feed this. But be careful: the water can become rotten with this kind of diet. With some luck and experience you will have your pleasure with some amazing small frogs within already a month which can be fed, like their parents, with any frozen or live food suitable for their size.



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REPORTS

Sri Lankas’s Threatened Jewel

by John Dawes

It may not be big, and it may only be seen on rare occasions, but for me and numerous other labyrinthfish enthusiasts the world over, *Malpulutta kretseri* is high on our list of favourite fish.

It was therefore with great excitement that I jumped at the opportunity of going in search of this tiny jewel during my last visit to Sri Lanka. My guide on the trip was M. W. Dharmadhasa, a truly amazing man with over 35 years experience of collecting fish for one of Sri Lanka’s leading exporters, Lumbini Aquaria Wayamba Ltd. The purpose of the expedition was to collect some *Malpulutta* specimens for a captive breeding programme being set up by Lumbini.

Threatened Fish Fauna

Sri Lanka has many beautiful endemic species of fish which are much loved by aquarists. However, some of these, like the Cherry Barb (*Barbus titteya*), Cuming’s Barb (*B. cumingi*), Ruby Barb (*B. nigrofasciatus*) and Bandula Barb (*B. bandula*) are all under varying degrees of threat in the wild. So is *Malpulutta kretseri*.

Happily, the barbs have already been the subjects captive breeding programmes for some time, and, as a result, some of the top exporters now have large stocks of such fish awaiting the go-ahead from the Sri Lankan government to begin exporting them. *Malpulutta* is a little different. In 1997, the Sri Lankan exporters agreed with the government, that the species should be banned from export and that captive breeding programmes

should be set up to produce future stocks for the world markets.

Undoubtedly, *M. kretseri* is – in overall terms – uncommon in the wild, but its exact status with regard to level of threat to its continued existence is uncertain. Indeed, while it can prove elusive to track down, one collector told me that large numbers can be collected from time to time in certain locations. Everyone agrees, though, that it is sensible to take precautionary steps, rather than wait and perhaps discover – at some future date – that the species is beyond recovery.

Malpulutta Success

The locations chosen by our guide was just inside Sri Lanka’s Southern Province. In reality, it was quite impossible to say whether we had actually entered the Southern Province, or whether we were right on the edge of the Western Province. The closest habitation was the tiny settlement of Pitigala.

The Stream we were collecting from, was reached via a narrow, steep trail which descended deep into one of the countless precipitous valleys that characterise the area. It is also pretty wild country, as the various animals we saw, including a large Monitor Lizard (*Varanus* sp.), and the signs of others we came across, such as wild elephant droppings, testified. The thrill of actually being in the vicinity of such creatures,

especially when on a mission to track down *Malpulutta*, added even further to the sense of occasion.

In the end, we could only spend about half an hour in the dark, flowing stream surrounded by thick vegetation. Nevertheless, we collected eight adult *Malpulutta* for the breeding programme, along with a host of other species, including – to my delight – numerous specimens of the very beautiful *Rasbora vaterifloris* and some Cherry Barbs (*B. titteya*).

We also took some water samples, which, having got back to base late that night, were tested 14 hours after collection. They were found to have pH value of 7,12.5 ppm (mg/l) of Carbonate (Temporary) Hardness and 35.8 ppm (mg/l) General (Permanent) Hardness. Therefore, when tested, the water was very soft and neutral.

Help from hobbyists

After installation of the fish in aquaria at Lumbini, they were left to settle down, after which they would be incorporated into the breeding programme.

Following further discussions, it became apparent that any documented accounts of successful spawnings of the species would assist the Sri Lanka-based project. Therefore, on my return to Spain, where I now live, I contacted the Anabantoid Association of Great Britain, of which I have the privilege of being president, and were launched, via the editor of the AAGB’s official publication, Labyrinth, a search for relevant literature.

At the time of writing this piece, a package has already been sent to Sri Lanka enclosing a collection of articles and reports of successful spawnings

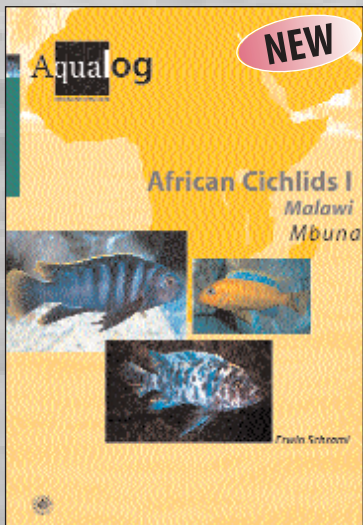


1 - Male *Malpulutta kretseri* (aquarium specimen).
2 - *Malpulutta* biotope.
3 - Newly collected male *Malpulutta kretseri*
4 - Dharmadhasa holding up a bag that contains several pieces, including *Malpulutta*
photos: 1 Aquarian Fish Foods, 2-4 J. Dawes

Acknowledgements

I would like to extend sincere thanks to Vibhu Perera and Jayanthi Ranasinghe of Lumbini Aquaria Wayamba Ltd., Mt Lavinia, Sri Lanka, for providing me with the opportunity to go in search of *Malpulutta kretseri*. I also thank M. W. Dharmadhasa and the other members of the collecting team for an unforgettable experience. Finally, many thanks to David Armitage, editor of Labyrinth, for coordinating the search for literature, and the members of the Anabantoid Association for Great Britain for providing such valuable details.

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